REMARKS

This is a full and timely response to the non-final Office Action (Paper No. 3) mailed by the U.S. Patent and Trademark Office on April 25, 2002. Claims 1-15 remain pending in the present application. Independent claims 1, 7 and 11 have been amended to define further the invention. Dependent claims 2, 9 and 12 have been canceled without prejudice waiver or disclaimer. However, the subject matter of dependent claims 2, 9 and 12 has been incorporated into independent claims 1, 7 and 11, respectively. In view of the foregoing amendment and following remarks, reconsideration and allowance of the present application and claims are respectfully requested.

Rejections Under 35 U.S.C. §112, First Paragraph

Claims 1-3, 9 and 12 stand rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Office Action states that "[a]pplicants have provided insufficient detail pertaining to a 'model.'"

Applicants respectfully submit that the term "model" as used in claims 1-3, 9 and 12 refers to the make and model (*i.e.*, the identity) of the test and measurement equipment. The model information is obtained by the video camera that is focused on the device under test and on the test and measurement equipment. The model information is transmitted over a communication link to a remote controller. In this manner, a test technician using the remote controller can ascertain the exact model of the test and measurement equipment and view the test arrangement to be certain that the device under test is properly connected to the test and measurement equipment.

Specifically, the specification on page 4, lines 3-6 states:

> [t]he remote analysis and control tool kit establishes the make and model of the connected test and measurement equipment. This make and model information is then transmitted to the call center for analysis and remote system control.

Further, the specification on page 14, lines 8-12 states:

> [a]t step 87, the computer 32 requests identification numbers from the test and measurement device 24 and device under test 23. The identification numbers of the test and measurement device 24 and device under test 23 are then transferred to the computer 32 within the remote analysis test kit 30 at step 87.

Accordingly, Applicants respectfully submit that the term "model" is disclosed in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention, and respectfully request that the rejection be withdrawn.

Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 2-3, 9 and 12 stand rejected under 35 U.S.C. §112, second paragraph.

The Office action states:

> Claims 2-3, 9, 12 recite the limitation "model." There is insufficient antecedent basis for this limitation in the claim.

The Office Action also states:

> The last limitation of claim 1 recites "*controlling said testing device **using from input** to said remote controller*". The meaning is ambiguous.

Applicants have canceled claims 2, 9 and 12. However, Applicants have added the subject matter of claims 2, 9 and 12 into independent claims 1, 7 and 11, respectively, and have changed the term "the model" to recite "a model" to provide proper antecedent basis. Applicants have amended dependent claim 3 to depend from

claim 1. Applicants have also amended independent claim 1 to recite "controlling said testing device using input from said remote controller" to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Accordingly, Applicants respectfully submit that claims 1 and 3 are in compliance with 35 U.S.C. §112, second paragraph, and request that the rejection be withdrawn.

Rejections Under 35 U.S.C. §102

Claims 1-15 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,969,835 to Kamieniecki *et al.* A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983). Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See e.g., In re Paulsen,* 30 F.3d 1475, 31 USPQ 2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ 2d 1655 (Fed. Cir. 1990). Alternatively, anticipation requires that each and every element of the claimed invention be embodied in a single prior art device or practice. *See, e.g., Minnesota Min. & Mfg. Co. v. Johnson & Johnson Orthopedics, Inc.*, 976 F.2d 1559, 24 USPQ 2d 1321 (Fed. Cir. 1992). The test is the same for a process. Anticipation requires identity of the claimed process and a process of the prior art. The claimed process, including each step thereof, must have been described or embodied, either expressly or inherently, in a single reference. *See, e.g., Glaverbel S.A. v. Northlake Mkt'g & Supp., Inc.*, 45 F.3d 1550, 33 USPQ 2d 1496 (Fed. Cir. 1995). Those elements must either be inherent or disclosed expressly. *See, e.g., Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 7 USPQ 2d 1057 (Fed.

Cir. 1988); *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 2 USPQ 2d 1051 (Fed. Cir. 1987). Those elements must also be arranged as in the claim. *See, e.g., Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d 1913 (Fed. Cir. 1989); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986). For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *See, e.g., Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001 (Fed. Cir. 1991.)

Accordingly, the single prior art reference must properly disclose, teach or suggest each element of the claimed invention.

It is alleged in the Office Action that:

> Kamieniecki et al. discloses an automated signal generator apparatus, which allows ***testing of remotely-controlled electronic devices*** to verify functionality and reliability, or for product set-up, initialization or configuration. The apparatus simulates a person pressing the keys on a remote control key pad, and can simulate key press sequences, key press duration, and time between key presses. Other human interfaces may also be simulated. The apparatus can be continuously driven by an external computer in a slaved mode, or can store test instructions in an internal memory to operate in a standalone mode. Test instructions, which may be written in a macro script language, are processed by a microprocessor to provide a control signal to, e.g., an infrared (IR) transmitter. The IR transmitter can control one or more electronic devices, which are under test. The transmitter may use a wide angle IR beam, or a plurality of separate transmitters for testing a plurality of electronic devices at the same time. In a human learning mode, control signals from a human interface are processed to provide time compression or repetition of a fixed control sequence.
>
> In particular, Kamieniecki et al. disclose:
> - connecting the DUT to a testing device (fig. 1; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);

- connecting a remote controlling device to the testing device (fig. 1; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- connecting a communications line (fig. 1 [# 125, 170]; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- using a video camera (col. 7, lines 27-40);
- establishing a communications link between remote controller and remote controlling device (fig. 1; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- transmitting DUT data to remote controller (fig. 1 [# 180]; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- controlling testing device using input from remote controller (fig. 1; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- initializing, establishing and transmitting data/attribute of DUT (fig. 1; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);
- forwarding instructions to remote controller and forwarding to testing device (fig. 1 [# 180]; col. 2, lines 20-28; col. 3, lines 28-35; col. 4, lines 7-63; col. 5, line 47 to col. 6, line 62; col. 7, lines 16-40; col. 9, line 54 to col. 10, line 13);

(Emphasis in Original)

Kamieniecki et al. appears to disclose an automated test signal generator apparatus that allows testing of remotely controlled electronic devices to verify functionality and reliability. *See* Abstract. *Kamieniecki et al.* appears to include a signal generator 100 that translates or converts test instructions to an electronic control signal which is received by an infrared (IR) transmitter 110. The IR transmitter 110 may emit a wide angle beam with sufficient power to be detected by each of a number of devices under test (DUTs) that are designed to receive the infrared signal. *See* column 5, lines 66 through column 6, line 3. *Kamieniecki et al.* appears to disclose a test apparatus

in which testing of the functionality and reliability of an IR controlled electronic device is performed. The IR testing apparatus apparently simulates human key presses on an IR remote control, and determines the reliability of an IR receiver that detects the key presses.

In marked contrast to *Kamieniecki et al.*, the present invention discloses a method and apparatus for remote control of a testing device that is connected to a device under test (DUT). The method and apparatus includes a video camera focused on the connection between the test and measurement device and the device under test. The video camera is coupled to a remotely located call center, which includes a remote control device that is operated by, for example, a test technician. The video camera collects information relating to the make and model of the test and measurement device, and information relating to the connectivity between the test and measurement device and the DUT. The video camera sends this video information from a remote analysis tool kit 30, of which the video camera forms a component, over a network 16 to the remote controller 13. The video information includes, among other identification information, the make and model number of the test and measurement device so that a test technician located at the remote controller 13 can view the model information of the test and measurement device. The test technician also receives information relating to the connections between the DUT and the test and measurement device. At least this feature of the invention is neither disclosed, taught, nor suggested by *Kamieniecki et al.*

Specifically, and with particular regard to the claims, claim 1 includes the steps of "establishing a model of the testing device" and "transmitting model information to the remote controller for analysis." Similarly, independent claim 7 includes "a third programmable logic to establish a model of the testing device" and "a transceiver for

transmitting model information to the remote controller for analysis." Similarly, independent claim 11 includes "means for establishing a model of the testing device" and "means for transmitting model information to the remote controller for analysis." Applicants respectfully submit that at least the feature of transmitting model information obtained by a video camera to a remote controller is neither disclosed, taught, nor suggested by *Kamieniecki et al.*

Accordingly, Applicants respectfully submit that independent claims 1, 7 and 11 are allowable over *Kamieniecki et al.* because *Kamieniecki et al.* fails to disclose each element of those independent claims. Further, Applicants respectfully submit that dependent claims 3-6, 8, 10, and 13-15 are allowable for at least the reason that they depend from allowable independent claims. *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1988) (Citations omitted).

Rejections Under 35 U.S.C. §103

Claims 1-15 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,504,432 to Chandler *et al.* In view of taking Official Notice. For a claim to be properly rejected under 35 U.S.C. §103, "[t]he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine*, *supra*.

It is stated in the Office Action that:

> Chandler et al. disclose an automatic circuit board tester for testing for shorts, opens, and interconnected pins or nodes on a circuit board. The tester first classifies the nodes as being in one of three categories based upon the design of the board and the

intended interconnection of the nodes. The categories of nodes are: (1) connected to ground; (2) interconnected to all other nodes in the test group; or (3) isolated from all other nodes. The circuit board tester has a testhead containing a plurality of test channels, each configured to be coupled to a node on the circuit board. The testhead utilizes a digital signal from a digital driver to drive the node at a predetermined voltage and a digital receiver to read the node voltage to determine if it is coupled to the ground. Each test channel also includes a switch to connect the digital driver and receiver to thet est node as well as a ground switch to selectively couple the node to ground. Various combinations of switch positions and testing sequences enables the circuit board tester to test all node connections and to ensure that the physical embodiment of the circuit board accurately reflects the circuit board design.

In particular, Chandler et al. discloses:

- connecting the DUT to a testing device (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- connecting a remote controlling device to the testing device (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- connecting a communications line (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- establishing a communications link between remote controller and remote controlling device (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- transmitting DUT data to remote controller (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- controlling testing device using input from remote controller (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- initializing, establishing and transmitting data/attribute of DUT (fig. 1-2; col. 3, line 21 to col. 4, line 24);
- forwarding instructions to remote controller and forwarding to testing device (fig. 1-2; col. 3, line 21 to col. 4, line 24);

Chandler et al. do not disclose use of "video cameras"

Official notice is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to employ video cameras during remote testing of DUTs because this provides other sources of information to the user which would not be as apparent from, for example, only electrical signals. For example, during testing of semiconductor DUTs, a video signal could show smoke, indicating overheating of the DUT.

Chandler et al. appears to disclose a system for testing a circuit board for short circuits, open circuits, and interconnected pins or nodes in which less than full power is applied to the circuit board to prevent activating semiconductor components on the board. However, as mentioned in the Office Action on page 7, *Chandler et al.* fails to disclose, teach, or suggest the use of a video camera to capture images of a device under test. Further, Applicants respectfully disagree with the statement in the Office Action that

> It would have been obvious to one of ordinary skill in the art at the time of the invention to employ video camera during remote testing of DUTs because this provides other sources of information to the user which would not be as apparent from, for example, only electrical signals.

Applicants respectfully submit that the Examiner taking "Official Notice" that it would be obvious to one of ordinary skill in the art to employ a video camera in the test setup of *Chandler et al.* is misplaced because *Chandler et al.* fails to provide any motivation whatsoever to one having ordinary skill in the art that a video camera would be useful in such a test arrangement. Applicants respectfully submit that there is nothing in *Chandler et al.* to disclose, teach or suggest the use of a video camera in the disclosed test arrangement, much less the use of a video camera to obtain and transmit model information of a test and measurement device to a remotely located remote controller, as disclosed and claimed in the present invention.

Accordingly, Applicants respectfully submit that independent claims 1, 7 and 11 are allowable over the proposed combination of *Chandler et al.* and *Examiner's Official Notice* because the proposed combination fails to render obvious independent claims 1, 7 and 11. Further, Applicants respectfully submit that dependent claims 3-6, 8, 10,

and 13-15 are allowable for at least the reason that they depend from allowable independent claims. *In re Fine, supra.*

No motivation to combine references

Applicants respectfully submit that there is no motivation to combine *Chandler et al.* with *the Examiner's Official Notice* of the use of a video camera to arrive at the present invention. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so." *ACS Hospital Systems, Inc., v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Further, "[t]here must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination." *In re Oetiker*, 977 F.2d 1443, 1447, 24 USPQ 2d 1443 (Fed. Cir. 1992).

In the recently decided case of *In re Sang-Su Lee*, 277 F.3d 1338, 61 USPQ 2d 1430 (Fed Cir. 2002), the United States Court of Appeals for the Federal Circuit, reviewing an obviousness rejection by a Patent Examiner that was upheld by the Board of Patent Appeals and Interferences, stated:

> [t]he "common knowledge and common sense" on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation....
>
> ....
>
> ...The patent examiner and the Board are deemed to have experience in the field of the invention; however, this experience, insofar as applied to

> the determination of patentability, must be applied from the viewpoint of "the person having ordinary skill in the art to which said subject matter pertains," the words of section 103.
>
> In finding the relevant facts, in assessing the significance of the prior art, and in making the ultimate determination of the issue of obviousness, the examiner and the Board are presumed to act from this viewpoint. Thus, when they rely on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record. The failure to do so is not consistent with either effective administrative procedure or effective judicial review. The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.

In Re Sang-Su Lee, 277 F 3d 1338 at 1345.

Applicants respectfully submit that there is nothing in *Chandler et al.* that would motivate one having ordinary skill in the art to employ a video camera to "establish a model of the testing device," or "transmit model information to the remote controller for analysis" as claimed in the present invention. Further, the proposed combination of *Chandler et al.* and *Examiner's Official Notice* fails to provide either a reasonable expectation of success of combining the references to arrive at Applicants' claimed invention or show any relevance to the problem solved by Applicants' invention. Further, the Office Action fails to articulate a clear motivation to make the proposed combination.

Specifically, Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness because the Office Action has not pointed out the specific teachings in *Chandler et al.* that would motivate one having ordinary skill in the art to combine the references to arrive at Applicants' invention. Indeed, *Chandler at al.* fails to disclose, teach or suggest any manner of employing a video camera to "establish a model of the testing device," or "transmit model information to

the remote controller for analysis". As mentioned above, *Chandler at al.* appears to merely disclose a testing methodology for testing for short circuits, open circuits and interconnected pins or nodes on a circuit board.

Further, Applicants respectfully disagree with the conclusory statement in the Office Action that:

> [i]t would have been obvious to one of ordinary skill in the art at the time of the invention to employ video cameras during remote testing of DUTs because this provides other sources of information to the user which would not be as apparent from, for example, only electrical signals.

Applicants respectfully submit that one having ordinary skill in the art would not be led by *Chandler et al.* toward employing a video camera to "establish a model of the testing device," or "transmit model information to the remote controller for analysis" because *Chandler et al.* Makes no mention whatsoever of using a video camera.

For at least the reasons stated above, Applicants respectfully submit that the proposed combination of *Chandler et al.* and *Examiner's Official Notice* is improper, and further, that the proposed combination of *Chandler et al.* and *Examiner's Official Notice* fails to disclose, teach or suggest at least "establishing a model of the testing device" or "transmitting model information to the remote controller for analysis" as disclosed in the present invention.

CONCLUSION

For at least the foregoing reasons, Applicants respectfully request that all outstanding rejections be withdrawn and that all pending claims of this application be allowed to issue. If the Examiner has any comments regarding Applicants' response or intends to dispose of this matter in a manner other than a notice of allowance, Applicant's request that the Examiner telephone Applicants' undersigned attorney.

Respectfully submitted

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ANNOTATED VERSION OF MODIFIED CLAIMS TO SHOW CHANGES MADE

In accordance with 37 C.F.R. § 1.121, please find below the amended claims in which the inserted language is underlined ("__") and the deleted language is enclosed in brackets ("[ ]"):

1. (Amended) A method for remote control of a testing device connected to a device under test, the method comprising the steps of:

connecting the device under test to the testing device;

connecting a remote controlling device to the testing device;

connecting a communication link to the remote controlling device;

directing a video camera on the testing device connections to the device under test;

establishing a connection between said remote controlling device to a remote controller on said communication link;

transmitting device under test data to said remote controller; [and]

controlling said testing device using [from] input [to] from said remote controller;

establishing a model of the testing device; and

transmitting model information to the remote controller for analysis.

3. (Amended) The method of claim [2] 1, further comprising the step of:

initializing said remote controller to control said remote controlling device using said model information.

7. (Amended) A remote controlling apparatus for remote control of a testing device connected to a device under test, said remote controlling apparatus comprising:

a connection interface between said testing device and said remote controlling apparatus;

a first programmable logic for controlling the testing device and the device under test;

a video camera to provide video images of the testing device and the device under test; [and]

a modem to transmit the video images across a network to a remote controller;

a third programmable logic to establish a model of the testing device; and

a transceiver for transmitting model information to the remote controller for analysis.

11. (Amended) A remote controlling apparatus for remote control of a testing device connected to a device under test, said remote controlling apparatus comprising:

means for connecting a remote controlling device to the testing device;

means for connecting a communication link to the remote controlling device;

means for directing a video camera on the testing device connections to the device under test;

means for establishing a connection between said remote controlling device to a remote controller on said communication link;

means for transmitting device under test data to said remote controller; [and]

means for controlling said testing device by said remote controller;

means for establishing a model of the testing device; and

means for transmitting model information to the remote controller for analysis.